

METHOD OF IMPLANTING COPPER BARRIER MATERIAL TO IMPROVE ELECTRICAL PERFORMANCE

ABSTRACT OF THE DISCLOSURE

A method of implanting copper barrier material to improve electrical performance in an integrated circuit fabrication process can include providing a copper layer over an integrated circuit substrate, providing a barrier material at a bottom and sides of a via positioned over the copper layer to form a barrier material layer separating the via from the copper layer, implanting a metal species into the barrier material layer, and providing a conductive layer over the via such that the via electrically connects the conductive layer to the copper layer. The implanted metal species can make the barrier material layer more resistant to copper diffusion from the copper layer.